



BRAZILIAN NEW PATTERNS OF AN INDUSTRIAL, TECHNOLOGICAL AND FOREIGN TRADE POLICY

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ABSTRACT

The objective of this paper is to deepen the discussion about the inescapable means Brazil should undergo so as to construct a contemporary industrial and technological policy, based on information and technological innovation, which can work as a stimulator of economic development. The different theories regarding this subject (SCHUMPETER, 1985; PAVITT, 1998; FREEMAN, 1995; KRUGMAN, 1995; COUTINHO & FERRAZ, 1994; MATIAS-PEREIRA & KRUGLIANSKAS, 2005), so as the principles set by the Brazilian Development Ministry (“Diretrizes Diamante Política Industrial, Tecnológica e de Comércio Exterior”), give support in the explore for process a brand new model of business, technological policy and foreign trade for the country. The strategic role of industrial policy seems to be terribly evident, if it takes on its coordination work involving the productive agents, which area unit accountable for crucial selections, such as those associated with investments and/or innovation, in a context of great dubiety regarding the results of their selections within the future. Finally, the conclusion arising from this discussion demonstrates that it is crucial for the country to define a contemporary industrial policy, which may be able to integrate the inducement to innovation moreover on exports, in order to function a tool to foster development. The paper also argues that the practicability to this policy depends on Government’s ability in supply agents with a positive context towards adequate regulation, purchasing policy, availability on financing facilities and fiscal incentives.

1. INTRODUCTION

The debate about the need of providing countries with consistent industrial policies has intensively resurged along the last two decades, mainly in developing countries. The basic argument here is the priority on generating commercial balance surpluses, in order to reduce deficit in current transactions and, therefore, fragility in those countries’ economy, which is subject to external shocks. We understand that industrial policy is capable of increasing exports and replacing imports. This paper is, then, aimed at reinforcing the relevance of a sound industrial policy to Brazil. Hence, we advocate that currently the dynamics of capitalism economy working strongly depends on technological development. This is also applicable to industrial sectors and corporations, if considered isolated.

its turn, globalization-related impacts impose the need for implementing new public policies and entrepreneur strategies in industrial and technological sector of emerging countries, like Brazil. The major target of an industrial policy is promoting efficient productive systems, capable of following-up the dynamics of international technical progress. One can observe in micro-economic theory that an industry is efficient when its configuration is sustainable, i.e., when the number of corporations set therein and their respective production branches allow for minimizing costs related to meeting existing demand. In its turn, sustainable configurations are typically oligopolies or monopolies, thus leading governments to use industrial promotion tools simultaneously to mechanisms in defense of public interest. Usually, industrial strategies restricted to the first goal tend to become hostages of major corporations’ economic power, generating only monopolist incomes and inefficient markets. In this sense, due regulation of concentrated sectors depends on solving the issue of information asymmetry. Imposing virtuous behavior to industry demands governments to use mechanisms to compensate their ignorance in relation to technologies and costs structures in force, fully known exclusively to enterprises set therein. Both developing and developed countries need to be supported by industrial policies based on technological development, oriented to foreign trade, aimed at accelerating competitiveness gains. Hence, we argue that Brazil needs an economic policy – oriented to reduce its economy’s external vulnerability – that requires for export-oriented and consistent industrial and technological policy. Thus, industrial and technological policy, as well as foreign trade policy, plays crucial role as a tool to encourage and finance export. Consistent industrial policy



based on technological development emerges as a factor for strengthening the country macroeconomic policy (MATIAS-PEREIRA, 2003; MATIAS-PEREIRA and KRUGLIANSKAS, 2005). To make Brazilian products more competitive at international markets, it would be necessary to add value to them and consolidate Brazilian trademarks in those markets. One can notice close relationship between progress reached by most developed nations and the use of knowledge and application of Science. In this sense, science and technology are related to progress through the broad range of human undertakings: educational, intellectual, medical, environmental, social, economic and cultural. Scientific and technological knowledge accrued and implemented by human kind represents an asset towards solving many different issues faced by humanity, such as the need for reducing poverty and environmental problems. Thus, we understand that benefits brought about by scientific research should flow to civil society as a whole and to economy in general, rather than just to executors or financiers of research activities (PAVITT, 1998).

Industrial and technological development must be supported by well-defined, competent and coherent policy, taking into consideration both efforts for executing research activities and transfer of results to civil society. This arrangement, duly articulating organizations, social institutions and mechanisms of implementation and assessment of scientific and technological development policies results, pursuing pre-established objectives, is what in Economic Theory many writers (FREEMAN, 1995; FREEMAN and SOETE, 1994, 1997; NELSON, 1993) use to call national (regional) innovation systems. One can observe that access to advanced technology, through imports, is becoming unfeasible in face of current trends towards privatizing knowledge worldwide. This reality evidences that emerging countries, as Brazil, should define consistent industrial and technological policies. It is worth recalling that, since 1980, when Brazil abandoned developmental policies, growth rate dropped to 2.4% a year and the country fell from leadership to 93rd in the global ranking of expansion (IBGE, 2004). This drop was consequence, among others, of huge lack of Governmental attention to educational and industrial policies. Exportoriented industrial policies, used by several emerging countries as, for instance, the so-called Asiatic Tigers, were successful due to educational developments achieved in those countries. Brazilian industrial policy, in its turn, from 1982 to 1994, gradually lost competitiveness since it was oriented to a closed economy. As of 1995, the Government, in a distorted view of development, adopted exchange and interests policies that jeopardized the Brazilian growth. This reality leads us to approach the issue of economic development, trying to define the work question and hypothesis to the article. In its turn, major objectives of S&T policies in most developed countries are focused on: a) quickly identifying important prospective opportunities; b) accelerating flow of information through the system; c) hastily disseminating new technologies; d) increasing connectivity of different parties making up the S&T system, aiming at speeding learning process. These objectives have been pursued as a whole, especially by mobilizing innovation networks, which became the core objective of governmental policy in those countries over the last few years. By the end of the 1980's, 80% of Japanese Government budget to S&T was addressed to technological collaboration projects, while 60% of European Community research budget was disbursed to promote new generic technologies

1.1 Industrial and technological policy based on information and technological innovation Extensive theoretical literature, since classic economists, evidences that recommendations towards industrial policy is not a novelty. One can observe that, even before Smith and Ricardo advocacy for free trade, mercantilist theses already prevailed in economic scenario in the 16th and 17th centuries. Proposals on definitions of legal rules to intervene in market and grant protection used to bring basically the same recommendations as current proposals, concerned with promotion of economic development. When approaching "development", we must make reference to some theorists in this field, as for example Schumpeter (1985), who sustains specific thought about what he called development "fundamental phenomenon" in his book "The Theory of Economic Development". Trying to deviate from mere economic history and static part of theory, i.e., circular flow, Schumpeter related economic development process to endogenous and discontinuous changes in the production of goods and services. In his analysis, entrepreneur (or Schumpeterian entrepreneur) is outstanding as crucial agent to economic development process. In this sense, economic development is not an issue of economic history, as it is usually considered, but of economic theory. Hence, emerges the need for creating economic development theory, based on economic theory. Economic theory, as known nowadays, studies circular flow – or general balance – besides continuous changes on this flow, and cannot comprise discontinuous changes or changes in the flow itself. The theory of circular flow is limited to studying the system trend towards balance and small continuous adjustment to the system itself. This theory is static and does not comprise the occurrence of productive revolutions and their consequences. One may say that economic development theory is on a different stage, because it studies discontinuous changes, or economic system jumps along time. Within this context, industrial policy is expected to induce cooperation among enterprises, both at horizontal scope – mainly in the field of R&D, and at vertical dimension, thus facilitating supplier/user relationship aiming at information exchange. In general, it concerns generating mechanisms to facilitate collective learning. On the other hand, this objective is not absolute, and



should be conditioned to major role to be contend by industrial policy inside Schumpeterian context. Furthermore, it should be highlighted that increasing competitive pressure is essential to permit competitive method, in order to induce development and dissemination of innovations to boost economic efficiency. In face of this reality, the following question comes about: how vital is that the building of a brand new model of business and technological, and foreign trade policy to succeed in the socio-economic development? during this article, we assume that the issue of business policy as core tool to Brazilian economic development has been left aside. The fragility of this segment is negatively mirrored on the volume of Brazilian exports. The increasingly concern of leaders of the Ministries of Development AND Foreign Trade and Foreign Affairs in encouraging national productive sector towards increasing exports volume points out that foreign trade intensification has become an vital strategy to push economic process and balance Brazilian foreign accounts, thus reducing its external vulnerability. In this sense, we have developed the subsequent hypothesis: recapture Brazilian economic development would demand contemporaneous industrial and technological policy to the country. It is worth mentioning, after these concerns, that our main goal herein is to deepen the debate on the requirement for Brazil to determine a contemporaneous industrial and technological policy, based on knowledge and technological innovation, here accepted as elements inducers of capitalist economic activity. This industrial and technological policy shall work as supportive tool, essential to the process of retaking Brazilian economic development.

2. INDUSTRIALIZATION PROCESS

Theories and Concepts The lack of a unified theoretical referential to studies on industrial and technological issues, initially required for considerations of conceptual and methodological nature about the industrialization process, as well as to defining concepts. In general, industrialization process is a phenomenon that, up to these days, has not yet been totally dimensioned within a definite theoretical framework. We could state that most of recent studies about economic development emphasize the relationship between economic growth dynamics and industrialization process. This led us to use as theoretical referential several theories dealing with the matter, as for example, the Incrementalist Theories; Innovation Theory; the New Theory of International Trade; Theory of Industrial Economy; Theory of Transaction Costs; Theory of Firm; and studies oriented to technological strategies and new technological paradigms of production.

Industrial policy with neo-classic origin is aimed at correcting the so-called “market failures”, i.e., those situations where markets features, deviating from the ideal model, do not allow prices to duly perform their duties of coordination and transmission of information, in a socially optimum way. Such failures are usually associated to the presence of: (i) externalities; (ii) existence of market power; and (iii) information asymmetry (LEDYARD, 1989). Therefore, when such failures exist, the market cannot generate optimum resources allocation, and State intervention may be economically efficient. It is worth highlighting that orientations provided by international organizations in the 1990’s, about basic features of Government intervention, emphasize the role performed by firms and markets as the major power generating long-term competitiveness and technological development (OECD, 1992) – supported by competitiveness defense policies – which should grant their due working, by acting over markets structure and firms behavior (KATZ and ORDOVER, 1990). Incrementalist theories emphasize gradual and continuous nature of technological changes, while advocating that most innovations would not come directly from R&D efforts, but from other parts of the company (engineering, production and quality control areas, for example), other elements of productive chain (equipment manufacturers, inputs and services providers) or from consumers. It should be highlighted that theorists of international trade are divided in two positions: those, like J. Brander, B. Spender, W. Branson, L. Thrurow, L. Tyson, among others, who advocate for strategic commercial policy, and those, as A. Dixit, Kyle, G. Grossman, J. Eaton, J. Bhagwati, among others, criticize this policy. The main positions of both groups have been gathered and edited by Krugman (1995).

2.1 Concepts Used

The definition of industrial policy herein is generic. For Jordan and Teece (1992, p.12), industrial policy may be understood as the set of measures that directly or indirectly affect industrial performance, through their effects on micro-economic variables. Traditional industrial policy generally targets to maximize real average income (CORREA and VILLELA, 1995, p. 5), thus granting it a static nature. Under more heterodox and recent lights, industrial policy pursues increasing competitiveness to firms, sectors and the country, acquiring more systemic dimension. Nevertheless, it lacks a theoretical basis to justify it, under normative light (CASSIOLATO, 1996). One can notice, in its turn, that the major focus of new competitiveness policies, within the scope of their impacts on corporations’ behavior, relies on the emphasis on cooperation among firms in high-technology industries, in order to reduce costs and uncertainties related to generation of innovations and exploitation of new technologies.



Productivity. Constant growth of productivity, in a pace faster than increase at micro- and political economy levels, grants better living conditions to individuals, provided that income is fairly distributed, which demands effective business enterprise policies. The search for greater productivity at organizations and countries depends on information and, therefore, its dissemination is pre-requisite for success. Competitiveness is compared valuation of productivity by 2 competency entities, whether countries, regions or organizations, which dispute the same markets. Krugman (1995) sustains that countries do not compete one to a different as international companies, since they do not leave market after they cease being competitive or fail in sinking their debts. However, national competitiveness ought to be understood in generic and relative terms, comparing every country's capability of discouraging economic activities, whether through actions or omission. The expressions industrial policy and industrial competitiveness policy, although being usually used indiscriminately, are totally different. The first means that efforts aiming at increasing density of business grid, by creating new sectors. The second refers to policies oriented to approximate productivity of existing sectors to best international levels (GASSMANN, 1994). Brazilian Science and Technology System. It is understood here as an articulated set of policies, institutions and their agents, connecting knowledge-based activities to productive framework (DAHLMAN and FRISCHTAK, 1990). This network of relationships, interactions and articulations may be viewed as an extensive and sophisticated institutional system, which interconnects research institutes, universities, corporations, governmental agencies, financial institutions, completing the circuit of generation, implementation and dissemination of innovations. Activities responsible for interacting science and technique involve technological management, capacity-building to researchers and technical staff, financing to S&T activities, information and technology transfer. Industrial Property. Rights resulting in exclusive replication or employment of given product (or service), in broad sense, are called intellectual property. In the field of intellectual property concerning interests of transformation and commerce – such as rights concerning trademarks and patents – are called “industrial property”.

3. INDUSTRIAL POLICY AND DEVELOPMENT

Historical Models One can observe that no developed country reached its current level of economic and social development without the support of science and technology (S&T), since the first (development) does not exist without the second (science and technology). Competitiveness among developed countries towards appropriation of information, knowledge and innovation development nowadays points out that emerging countries – as Brazil – should undertake efforts for building up autonomous technological development model, which should take into consideration improving intellectual property system (MATIAS-PEREIRA and KRUGLIANSKAS, 2004, 2005). It should be highlighted that Brazilian industrial sector, along the last three decades, has faced deep and radical changes in its environment (IEDI, 2003). The most feasible explanation for corporative survival and success is based on innovation and technological development processes. It reinforces the notion that innovative activity should be considered as genuine need, rather than as likely strategic alternative. Thus, the technological factor becomes crucial to corporations, and when properly managed, is indispensable for improving their quality and competitiveness. It is worth mentioning that there are evidences that grants over products innovations are usually essential for corporations' survival in market. Within this context, becomes crucial for Brazil to define ways to the field of holding protection that allow achieving this objective. As greater the nation's productivity, as higher its population's living standard. Productivity growth induces economic growth and increases per capita financial gain of a rustic (OCDE, 2001). At corporation level, productivity is one of the key-factors that encourage competitiveness (HMSO, 1994). According to Krugman (1995), productivity in economy is the key behind the notion of competitiveness. In this sense, better productivity levels contribute to the country's growth and to enhance civil society's living standards. In its turn, the productivity level of Latin American countries is way less than average of developed countries. Works on this topic, such as those prepared by ECLAC (2000), disclose the difficulty for overcoming this distinction, resulting from many factors: shy capital, under-skilled labor force, and incapacity of reaching vanguard countries, such as the USA, in terms of innovation. It is well known that none of such deficiencies may be quickly corrected. One can notice that the only way for enhancing competitiveness capacity, whether among countries or organizations, is through increased productivity level. Among three basic production inputs – work, capital and knowledge – the last is the most decisive. Achieving this objective would require for developing education enhancement policies – especially in directions that will impact productivity – which, in their turn, will allow using science and technology as tools for generating welfare to society. Knowledge is to be understood as a decisive factor for increasing productivity. Without knowledge, no country succeeds in being consistently inserted into global market. Major challenge to be faced by Brazil, therefore, is to define strategies oriented to increasing productivity, since the country – which faces competitiveness problems in almost all sectors – must recover from its poor performance in the 1990's, when average growth rate to total productivity was negative (IDB, 2001). It is broadly acknowledged that Brazil, as can be observed from its poor performance of its macro socio-economic indicators (IBGE, 2004) should develop and have access to new technologies in order to reach this objective.



4. GUIDELINES TO INDUSTRIA

Technological and Foreign Trade Policy the rules on “Industrial, Technological and Foreign Trade Policy”, coordinated by Brazilian Ministry of Development, Industry and Foreign Trade (MDIC, 2004), comprising 57 measures, some in force as of 2003, is intended to outline a brand new model of business and foreign foreign policy for Brazil, as will be any mentioned. Industrial Policy. Here, industrial policy is defined as a coordinated set of actions, involving public and private sector, aiming at expanding industrial aggressiveness. Its final objective is to induce economic growth and industrial sector employment. Thus, industrial policy is a component of the trade strengthening policy and crucial a part of a development policy. Competitiveness promotion is the focus of business policy presently practiced in developed world, and in countries that pursue promoting development. Industrial policy, as policy to promote competitiveness, cannot be dissociated from aggressiveness, technological updating and productivity increase, and is not targeted to crease and disseminate privileged and inefficient sectors and companies, which survive thanks to protection and subsidies. Globalization and trade relief agreements being negotiated by Brazil (NAFTA, Mercosur/EU, new WTO spherical of liberalization) makes crucial for good restorative aggressiveness in industrial activities and economy as a whole. Therefore, industrial policy should conjointly be permanent and unendingly reviewed. Industrial policy is not an alternate or con to executing policies and development within the remaining sectors of economy. Industrial development is an extra issue of incentive to developing agriculture, services and financial activities. Industrial policy and development are not incompatible to inflationary stability and management over public expenses, as evidenced by many countries with nice industrial growth that follow active industrial policies, while protective stability (MDIC, 2004, p.8).

Horizontal Policies. “Horizontal” measures (oriented to industrial activity in general, with no specification of sectors/chains), as describe in aforementioned document, shall be permanent and, in principle, the main measures for conceiving an industrial policy. Sectoral or productive chain-related policies are complementary, typically ephemeral and with specific objectives, clearly stated.

REFERENCES

- [1]. ALMEIDA, Paulo Roberto. (1991), “Propriedade Intelectual: Os novos desafios para a América Latina”, Estudos Avançados, 12, nº. 5, pp. 187-203.
- [2]. ARAÚJO JUNIOR, José T. de. (1985), Tecnologia, concorrência e mudança estrutural: A experiência brasileira recente, Rio de Janeiro: IPEA.
- [3]. ARROW, K. (1962), Economic welfare and the allocation of resources for invention, in: LAMBERTON, D. (ed). Economics of information and knowledge. Harmondsworth: Penguin Books, 1971.
- [4]. AUDRETSCH, D. & FELDMAN, M. (1996), R&D spillovers and the geography of innovation and production. American Economic Review, v. 86, n. 3, pp. 630-640.
- [5]. BAUMANN, R.(org.).(1995). O Brasil e a economia global. Rio de Janeiro: Editora Campus/SOBEET.
- [6]. BRYCE, M. D..(1970), Política e métodos de desenvolvimento industrial. Rio Diamond State Janeiro: Forense.
- [7]. BUCKLEY, Peter J. & CLEGG, Jeremy (Editors).(1991), Multinational enterprises in less developed countries. Great Britain: Macmillan.